REMARKS

Reconsideration of the application is respectfully requested.

As mentioned in the extension request, the office action gave a period for response of one month. It is respectfully requested that such be reconsidered as normally substantive office actions carry a three month period for response. Please credit any overpayment to Account No. 12-1155.

Applicants hereby affirm the provisional election with traverse of group II, claims 5-7. Both claim 1 and claim 5 are directed to use of a single screw cooler having the same distance of flight of the screw to the inner wall of the barrel. It would appear that it would not be unduly burdensome on the Office, and most efficient, to examine the claims together.

The Office indicates that no certified copy of the priority document has been received. Applicants enclose a copy of a post card indicating receipt by the Patent Office on June 25, 2001 of the priority document. It would be appreciated if the Office would inform the applicants in what respects the priority document is deficient.

US 4844928 and US 4840810 deal with use of the same device, called a Cavity Transfer Mixer (CTM), in a spread manufacturing process.

However, apart from some functional similarities, important differences can be pointed to.

The geometry is quite different. The CTM includes two cylinders, a stator and a rotor, with a narrow annulus (col.7, lines 58-61). Cavities are present on the cylinder surfaces. The spread flow has to be pressed by a pump through the narrow space between rotor and stator.

The geometry of the single screw has been derived from the ancient Archimedes screw (see cited references), and so is clearly distinguished from the CTM. For proper cooling it has a characteristic and claimed tight fitting of the rotating screw within the static barrel. However, ample space is allowed between the blades within the screw.

This space is most relevant for functionality: the undersigned has been informed that it makes the residence time of the spread flow in the screw relatively long. The prolonged residence allows a gradual heat transfer at the cooled barrel wall. On page 12 it is mentioned that cooled brine or ice water are sufficient for proper cooling. This is in contrast to the CTM where according to the examples cooling of the stator to minus 20 degrees C provides sufficient cooling. Because of the small inner volume of the CTM the residence time of the spread flow and so the contact time with the cooled surface is very short. Moreover, proper fat crystallisation is adversely affected by the forced quick cooling.

A noteworthly feature of the present screw cooler is that it is an effective low shear conveyor even of highly viscous materials and therefore - in contrast to the CTM - a high energy pump can be dispensed with (page 9). This functionality has the advantage that the cooling device will not freeze during temporary, but frequent interruptions of the production flow with the effect that the line is cluttered by crystallized fat. With a CTM, as with the traditional scraped surface heat exchanger, only by heating the line are its contents liquefied and subsequently they must be recirculated for renewed processing. But when restarting the line of the invention the single screw is able to convey the spread flow to the exit, even after it has become highly viscous by progressive fat crystallisation. For said reasons the CTM has never been successfully applied on large scale in margarine production plants.

Applicants contend that employing the single screw in the margarine manufacturing process not only is new, but also has inventive merit. It is not suggested by the cited references.

In view of the foregoing, it is respectfully requested that the application be allowed.

Respectfully submitted,

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